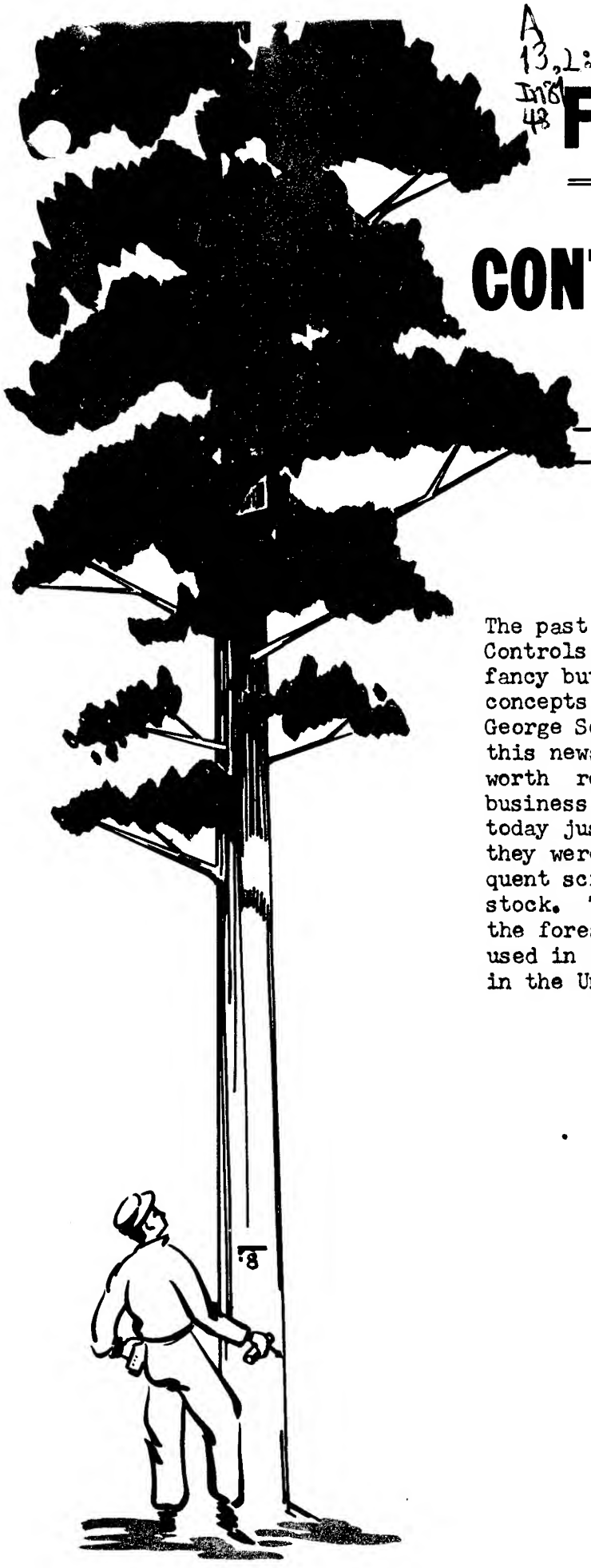

FOREST CONTROL *by* CONTINUOUS INVENTORY

"Today I have grown taller from walking [illegible] past."

...Karle Wilson

Milwaukee 3, Wis. March, 1958 No. 48

RETROSPECTION

The past 10 years of Continuous Forest Inventory Controls have not been built on filigree and fancy but on constantly revised and corrected concepts conceived over the past 30 years. George Semmens and I repeat these concepts in this newsletter because we believe they are worth reviewing and because they express the business and technical objectives of C.F.I. today just as well as they did 10 years ago when they were written. They still encourage a frequent scientific investigation of forest growing stock. They continue to call for management of the forest on the sound, businesslike principles used in every successful and permanent business in the United States today.

CAL STOTT

The Yanester

CONTINUOUS FOREST INVENTORY

WITH I.B.M. MARK SENSING

Sound forest management differs little from sound business management. Both require that the manager have free and ready access to the facts of the business, and that he use as little personal time and managerial talent as possible collecting and organizing facts.

To secure information essential to sound business management, it is necessary to inventory the stock periodically, recording quantity, condition, price, and location of the merchandise. A going business cannot do without these production controls and guides.

A going forest business requires these same controls and guides. The information is provided by an inventory of the growing and cutting stock in terms of quantity, condition, quality and location. The demand of the manufacturing plant for wood, and the ability of the forest to produce it, must be held in reasonable balance. Forest inventorying is a bookkeeping device for this purpose.

Bookkeeping in the plant deals with money, men, and supplies. Bookkeeping in the woods treats with trees and wood volume. Both kinds of bookkeeping are important to wood growing, wood utilizing and wood manufacturing.

It is unfortunate that timber bookkeeping has not kept pace with bookkeeping in the plant. Woods accounting has fallen behind because it is still commonly geared to liquidating woods practices or limited to the buying and selling of timber to be clear cut. Timber inventory has not been modified to fit into the pattern of sustained yield forestry, but a change is on the horizon.

New techniques are being brought together for the continuous and repeated inventory of forests. These techniques include the use of aerial photographs, statistical methods, measured permanent samples of paint-numbered trees, the collection of complete detail in the woods, and IBM mark sensing methods to record the detail.

Complete inventories of forests in the one hundred thousand to five hundred thousand acre class are now being made at a cost of one to two cents per acre per year in the Great Lakes and Central States regions. This cost includes two inventories within a ten year period, and requires the use of every one of these modernized cruising techniques. The difference between any two inventories is the growth, less the mortality, plus the ingrowth for the forest in question. The method requires no borings, artificial guides, formulae or guesses. It is a natural way to balance the cut within the limit of the growth to any predecided statistical accuracy standard.

- Cal Stott, Forester, U. S. Forest Service - Region 9, Milwaukee,Wis.

NATURAL SELECTION - A SOUND FOUNDATION FOR SILVICULTURAL PRACTICE

The year by year behavior of trees that make up the forest is the best guide to its silvicultural management. For those who are there to see, the trees in any woods constantly pass in review.

There are many fine, sound, full-crowned trees in complete control of their share of the soil and sun space. These trees are good growing stock.

There are some trees no longer in harmony with their environment, and no longer able to regain lost vigor. Soon to die, these trees have more than reached the time for the axe and the saw of the timber cutter. They are harvest material.

Vacillating midway between this state of advance and decline are still other trees. Pushed ahead by the removal of the harvest stock, held back by inherent weaknesses, environmental deficiencies and the crown pressures of surrounding trees, these are the ones from which to gradually collect the growth of the whole forest, after the harvest trees have been taken.

The rate of change in condition of each main stand tree in the forest is a good measure of the condition of the whole forest, and a good measure of the maximum growing stock that the soil can profitably support.

Change in tree condition in the forest varies with its environmental fitness, inherent qualities and silvical characteristics. Foresters who make a preliminary test cruise to determine the volumes of trees in progressive, provisionary and regressive classes have the most essential information with which to manage the stand in conformity with Nature's way, leaving the best trees to grow high grade wood and to eventually seed the stand, and taking out the harvest trees while they are still in a state of net growth.

Site, soil, species and spacing help to fix the amount of wood a forest can produce. When these four are combined with the biotic stand factors they can become a complete guide to silvicultural practice. When they are used mechanically as stocking guides for broad areas of forest they but delay the day of intensive silviculture.

Practice ultimately will make it possible for the forester to see the sign that the forces of natural selection place on the tree when it begins to become superfluous to its habitat. Trees not so marked in nature are seldom ready for marking by the forester.